

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter II of the Patent Cooperation Treaty)

REC'D 21 JUL 2005

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(PCT Article 36 and Rule 70)

Applicant's or agent's file reference SP 08852 WO	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/SE2004/000642	International filing date (day/month/year) 28.04.2004	Priority date (day/month/year) 12.05.2003
International Patent Classification (IPC) or national classification and IPC B62D1/06 // F28D15/02		
Applicant Autoliv Development AB et al		

- This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 5 sheets, including this cover sheet.
- This report is also accompanied by ANNEXES, comprising:
 - ☐ (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows:
 - ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
 - ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

- This report contains indications relating to the following items:

<input checked="" type="checkbox"/>	Box No. I	Basis of the report
<input type="checkbox"/>	Box No. II	Priority
<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
<input type="checkbox"/>	Box No. IV	Lack of unity of invention
<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
<input type="checkbox"/>	Box No. VI	Certain documents cited
<input type="checkbox"/>	Box No. VII	Certain defects in the international application
<input checked="" type="checkbox"/>	Box No. VIII	Certain observations on the international application

Date of submission of the demand 12.11.2004	Date of completion of this report 13.07.2005
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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/SE2004/000642

Box No. I Basis of the report

1. With regard to the language, this report is based on:



the international application in the language in which it was filed



a translation of the international application into _____
which is the language of a translation furnished for the purposes of:



international search (Rules 12.3(a) and 23.1(b))



publication of the international application (Rule 12.4(a))



international preliminary examination (Rules 55.2(a) and/or 55.3(a))

2. With regard to the elements of the international application, this report is based on (replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):



the international application as originally filed/furnished



the description:

pages _____

pages* _____

pages* _____

as originally filed/furnished

received by this Authority on _____

received by this Authority on _____



the claims:

pages _____

pages* _____

pages* _____

pages* _____

as originally filed/furnished

as amended (together with any statement) under Article 19

received by this Authority on _____

received by this Authority on _____



the drawings:

pages _____

pages* _____

pages* _____

as originally filed/furnished

received by this Authority on _____

received by this Authority on _____



a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:



the description, pages _____



the claims, Nos. _____



the drawings, sheets/figs _____



the sequence listing (specify): _____



any table(s) related to the sequence listing (specify): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).



the description, pages _____



the claims, Nos. _____



the drawings, sheets/figs _____



the sequence listing (specify): _____



any table(s) related to the sequence listing (specify): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/SE2004/000642

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-9</u>	YES
	Claims		NO
Inventive step (IS)	Claims		YES
	Claims	<u>1-9</u>	NO
Industrial applicability (IA)	Claims	<u>1-9</u>	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

Reference is made to the following documents:

D1: US 4640340 A
D2: DE 19935862 A1
D3: WO 0128842 A1

The problem addressed by the present invention is to create an arrangement to cool a hot steering wheel resulting from a vehicle being parked for a long period of time in bright sunshine (see page 1, line 25-line 27 and page 4, line 21-page 5, line 7 of the description). In this case the uppermost region of a conventional steering wheel can become raised to a very high temperature by the sun, whilst the lower region of the steering wheel remains at a more comfortable temperature (due to the fact that the lower region of the steering wheel is shielded from direct heating by the sun). The solution, defined in claim 1, is to provide the steering wheel with heat pipes, used to facilitate rapid transfer of heat from the hot region to the lower temperature region of the rim (without the need of any external cooling arrangements).

Document D1, which is considered to represent the most relevant state of the art, discloses (see fig. 8) a steering wheel having a central hub (6) connected by spokes (4) to a rim (2). The rim (2) is provided with a heat pipe (120), transferring heat from a first region of the rim to another region of the rim. The heat pipe (120) is heat-conductively connected to thermoelectric transducers (20), which generates or absorbs heat. Hence, a cooling or heating of the rim (2) can be performed.

.../...

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of: Box V

The steering wheel of claim 1 differs from this known steering wheel in that the heat pipe is thermally isolated from any external cooling arrangement and that heat transfer is taking place solely under the heat pipes own function (an observation in Box VIII is made concerning the statement "solely under its own function").

However, a usage of the steering wheel according to D1, with the thermoelectric transducers switched off (which is a probable situation when the vehicle of D1 is parked) or switched to a heating mode (see claims 7 and 8 of the present application), would result in a steering wheel according to claim 1 (as well as claims 7 and 8). Although this kind of usage (entirely excluding cooling mode) of the thermoelectric transducers is not explicitly mentioned in D1, said usage cannot be considered to involve any inventive skill. Hence, the subject-matter of claim 1 is considered obvious to a person skilled in the art and consequently lacks an inventive step.

The additional features of dependent claims 2-9 is either known or considered obvious to a person skilled in the art, with respect to the steering wheel disclosed in D1. Hence, the subject-matter of claims 2-9 is not considered to involve an inventive step.

Each of D2 (see abstract, fig. 1-3 and claims 1-13) and D3 (see abstract, fig. 4 and claims 1-24) discloses similar steering wheels as the one described in D1.

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

The statement "solely under its own function" in claim 1 is somewhat unclear, considering claim 7 and 8 of the present application. This statement is interpreted as a heat transfer in the heat pipe without external heating or cooling means connected to the heat pipe. However, this interpretation stands in conflict with the subject-matter of claims 7 and 8.